



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,418	03/30/2005	Ya-Jane Wang	117682-011	8357
24573	7590	01/26/2009		
BELF., BOYD & LLOYD, LLP				
P.O. Box 1135				
CHICAGO, IL 60690				
EXAMINER				
HEINER, LIAM J				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
01/26/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/506,418

**Applicant(s)**

WANG ET AL.

**Examiner**

Liam J. Heincer

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 October 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.  
4a) Of the above claim(s) 19 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1 and 3-18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 17 contains the limitation "wherein the compatibilizer is covalently bound to said first polymer". There is no support in the instant specification for the grafted polymer that comprises the compatibilizer reacting with a polyolefin. The original claims and specification support the grafting compound reacting with a polyolefin (original claim 17) to form the compatibilizing agent, but do not support the formed compatibilizing agent reacting with a second polymer.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Considering Claim 17: Claim 17 recites the limitation "individual monomer units" in lines 14 and 15. There is insufficient antecedent basis for this limitation in the claim. There are two polymers disclosed above, the starch and the polyolefin. It is not clear which of these the compatibilizer is attached to.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-6, 8, and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Yoo et al. (Journal of Applied Polymer Science, Vol. 83, 767-776, 2002).

Considering Claim 1, 8, and 9: Yoo et al. teaches a composition comprising LLDPE, starch in amounts of 10, 20, 30, and 40 weight percent, and maleated polyethylene in an amount of 5 and 10 weight percent (pg. 768). Yoo et al. also teaches the components as being vacuum dried (pg. 769), and that this technique will result in minimal moisture content/less than 1% by weight (pg. 768). Yoo et al. further teaches that starch is not plasticized (pg. 773).

Considering Claim 2: Yoo et al. teaches using corn starch (pg. 768).

Considering Claim 4-6: Yoo et al. teaches the maleic anhydride being present in an amount of 3 weight percent in the compatibilizer (pg. 768).

Claims 10-13, 15, and 16 are rejected under 35 U.S.C. 102(a) as being anticipated by Yoo et al. (Journal of Applied Polymer Science, Vol. 83, 767-776, 2002).

Considering Claim 10 and 16: Yoo et al. teaches mixing LLDPE, starch in amounts of 10, 20, 30, and 40 weight percent, and maleated polyethylene in an amount of 5 and 10 weight percent (pg. 768), then heating the mixture under pressure (pg. 769) so that the compatibilizer and the starch covalently bond (Fig. 2).. Yoo et al. also teaches the components as being vacuum dried (pg. 769), and that this technique will result in

minimal moisture content/less than 1% by weight (pg. 768). Yoo et al. further teaches that starch is not plasticized (pg. 773).

Considering Claim 12, 13, and 15: Yoo et al. teaches the maleic anhydride being present in an amount of 3 weight percent in the compatibilizer (pg. 768).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al. (Journal of Applied Polymer Science, Vol. 83, 767-776, 2002) as applied to claim 7 above.

Considering Claim 7: Yoo et al. teaches the composition of claim 1 as shown above.

Yoo et al. teaches the the maleic anhydride being present in an amount of 3 weight percent in the compatibilizer (pg. 768). This is sufficiently close to the claimed amount of 5 weight percent that a person having ordinary skill in the art at the time of invention would have expected the compounds to have substantially the same properties in the composition. A *prima facie* case of obviousness exists where the

claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP § 2144.05.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al. (Journal of Applied Polymer Science, Vol. 83, 767-776, 2002) as applied to claim 10 above.

Considering Claim 14: Yoo et al. teaches the method of claim 10 as shown above.

Yoo et al. teaches the maleic anhydride being present in an amount of 3 weight percent in the compatibilizer (pg. 768). This is sufficiently close to the claimed amount of 5 weight percent that a person having ordinary skill in the art at the time of invention would have expected the compounds to have substantially the same properties in the composition. A *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP § 2144.05.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al. (Journal of Applied Polymer Science, Vol. 83, 767-776, 2002) as applied to claim 7 above, and further in view of Gergen et al. (US Pat. 4,578,429).

Considering Claim 18: Yoo et al. teaches the composition of claim 1 as shown above.

Yoo et al. does not teach the compatibilizer as being a maleic anhydride grafted poly(styrene-ethylene-butylene-styrene) copolymer. However, Gergen et al. teaches using a maleic anhydride grafted poly(styrene-ethylene-butylene-styrene) copolymer (Example 1) as a compatibilizer between a thermoplastic and a filler (2:38-50). Yoo et al. and Gergen et al. are analogous art as they are concerned with the same field of endeavor, namely maleic anhydride functionalized compatibilizing agents. It would have been obvious to a person having ordinary skill in the art at the time of invention to

have used the compatibilizer of Gergen et al. in the composition of Yoo et al., and the motivation to do so would have been, as Gergen et al. suggests, the functionalized rubber will perform the same function as the compatibilizer of Yoo et al. (2:38-50).

### ***Response to Arguments***

Applicant's arguments, see appeal brief, filed October 20, 2008, with respect to the rejection(s) of claim(s) 1 and 3-17 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yoo et al..

Applicants argument that the claimed moisture content would not be inherent in Jane et al. is persuasive. As Jane et al. emphasizes a period at the elevated temperatures (4:22-35), the starch would not have sufficient time to achieve the claimed moisture content.

Additionally, applicants arguments that the combination of Dehennau et al. and the secondary references do not teach the claimed moisture content is persuasive.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796

LJH  
January 6, 2009